



January 6, 2006

Laura Hardcastle
Co-Chair
Association of State Refugee
Health Coordinators
Chief, Refugee Health Section
California Department of
Health Services
1501 Capitol Avenue
Sacramento, CA 95814

Sam Householder, Jr.
Co-Chair
Association of State Refugee
Health Coordinators
Texas Department of State
Health Services
Refugee Health Screening Program
West 49th Street, G-308
Austin, TX 78756-3199

Carol Pozsik
Executive Director
National Tuberculosis
Controllars Association
2452 Spring Road, SE
Smyrna, GA 30080

Dear Ms. Hardcastle, Mr. Householder, and Ms. Pozsik:

The purpose of this letter is to provide you with updated information about the U.S.-bound Hmong refugees in Wat Tham Krabok, Thailand (since July 15, 2005 [the date of most recent data reported in a previous MMWR]). As of November 23, 2005, fewer than 1,000 Hmong refugees remain at Wat Tham Krabok. The total number of arriving Hmong refugees by destination states and tuberculosis classification from June 16, 2004 through November 23, 2005 is shown in Table 1. From July 16 through November 23, 2005, 1,870 Hmong refugees have arrived to the United States (Table 2).

Since July 15, 2005, officials at Wat Tham Krabok have diagnosed 14 refugees with tuberculosis disease; two of whom have multidrug resistant tuberculosis (MDR TB). During the entire resettlement, as of November 18, 2005, the total number of refugees who have been diagnosed with tuberculosis in Thailand is 369, of which 26 have been diagnosed with MDR TB. Among refugees who have been diagnosed overseas with tuberculosis, 232 have completed treatment. The sputum smear and drug susceptibility testing results for the MDR TB cases diagnosed overseas are reported in Table 3.

To date, U.S. health departments have reported 45 tuberculosis cases in resettled Hmong refugees; seven of these were MDR TB (Table 5).

CDC continues to work with the Department of State, Bureau of Population, Refugees, and Migration (PRM), and the International Organization for Migration (IOM) to provide guidance and consultation to optimize tuberculosis diagnosis and treatment for the remaining refugees in Wat Tham Krabok and their safe movement and resettlement to the

United States. Since the high rates of tuberculosis and MDR TB were detected earlier this year, IOM has employed four physicians to manage tuberculosis cases, including two physicians with experience in MDR TB treatment and one pediatrician with experience managing tuberculosis in children. The directly observed therapy (DOT) program has also been enhanced and currently includes 4 nurses providing DOT 6 days per week. Because cultures are now being performed on all sputum specimens obtained, laboratory capacity was also expanded and improved to meet the demands of tuberculosis diagnosis and treatment in this population. The laboratory currently has capacity for processing 30-40 specimens per day, and results are known for cultures within 9 weeks and for drug susceptibility after an additional 8 weeks. In addition to CDC oversight, the Thailand Ministry of Public Health Regional Laboratory provides external quality assurance to the program. As was previously reported, all refugees diagnosed with tuberculosis are required to complete directly observed therapy before departing for the United States. This therapy is being provided using American Thoracic Society (ATS)/CDC guidelines. For your reference, a comparison of the sequential tuberculosis screening and treatment algorithms used during the Hmong resettlement is attached (Table 6).

Thank you for your help in conveying this information to the members of your organizations. Please do not hesitate to contact me if you have further questions.

Sincerely,

Susan A. Maloney, MD, MHS
Acting Branch Chief
Immigrant, Refugee, and Migrant Health Branch
Division of Global Migration and Quarantine
National Center for Infectious Diseases

Enclosures

cc:

Marta Brenden, ORR, ACF, DHHS
Ken Castro, DTBE, NCHSTP, CDC
Martin Cetron, DGMQ, NCID, CDC
Kelly Gauger, PRM, DOS
Danielle Grondin, IOM
Michael Iademarco, DTBE, NCHSTP, CDC
David Smith, OGHA, OS, DHHS
Zachary Taylor, DTBE, NCHSTP, CDC
Charles Wells, DTBE, NCHSTP, CDC

Table 1. Hmong arrivals, by state of resettlement and TB notification status, **June 16, 2004, through November 23, 2005.**

State	No TB Notification	Class B1	Class B2 [*]	Total Arrivals
Alaska	76	3	0	79
Arkansas	24	1	0	25
California	5,296	228	25	5,549
Colorado	61	2	0	63
Georgia	34	0	0	34
Illinois	3	0	0	3
Indiana	0	2	0	2
Kansas	32	0	0	32
Massachusetts	42	1	1	44
Michigan	245	8	0	253
Minnesota	4,774	165	33	4,972
Nebraska	5	0	0	5
North Carolina	281	11	3	295
Ohio	44	0	0	44
Oklahoma	8	0	0	8
Oregon	38	2	0	40
Pennsylvania	7	1	0	8
Rhode Island	100	2	1	103
Texas	3	0	0	3
Virginia	3	0	0	3
Washington	85	1	2	88
Wisconsin	2,990	89	22	3,101
Total	14,151	516	87	14,754

^{*} Due to interim changes in overseas TB classifications for this refugee group, there have been no B2 notifications beginning February 16, 2005 (when movement restarted).

Table 2. Newest Hmong arrivals, by state of resettlement and TB notification status,
July 15, 2005, through November 23, 2005.

State	No TB Notification	Class B1 *	Total Arrivals
Alaska	10	1	11
Arkansas	0	0	0
California	635	122	757
Colorado	0	0	0
Georgia	0	0	0
Illinois	0	0	0
Indiana	0	0	0
Kansas	0	0	0
Massachusetts	9	1	10
Michigan	8	2	10
Minnesota	547	81	628
Nebraska	0	0	0
North Carolina	30	6	36
Ohio	0	0	0
Oklahoma	0	0	0
Oregon	5	1	6
Pennsylvania	7	1	8
Rhode Island	7	2	9
Texas	0	0	0
Virginia	0	0	0
Washington	6	0	6
Wisconsin	346	43	389
Total	1,610	260	1,870

* Due to interim changes in overseas TB classifications for this refugee group, there have been no B2 notifications beginning February 16, 2005 (when movement restarted).

Table 3. Hmong refugees diagnosed with multidrug-resistant tuberculosis overseas, by sputum smear and drug susceptibility testing results, November 18, 2005, n=26.

Sputum Smear		
Results	Resistance	Number (%)
Positive	INH, RIF, SM	2 (8)
	INH, RIF, SM, EMB	10 (38)
	INH, RIF, SM, EMB, PZA	3 (11)
Negative	INH, RIF, SM	2 (8)
	INH, RIF, SM, EMB	7 (27)
	INH, RIF, SM, PZA	2 (8)

Table 4. Hmong diagnosed with tuberculosis after primary resettlement, by state, June 16, 2005, through November 23, 2005.

State	TB Cases		MDR-TB Cases	Total Arrivals
	Number	Rate per 100,000		
Alaska	0	0	0	79
Arkansas	0	0	0	25
California	28	505	6	5,549
Colorado	0	0	0	63
Georgia	0	0	0	34
Illinois	0	0	0	3
Indiana	0	0	0	2
Kansas	0	0	0	32
Massachusetts	0	0	0	44
Michigan	1	395	0	253
Minnesota	7	141	1	4,972
Nebraska	0	0	0	5
North Carolina	0	0	0	295
Ohio	1	2,273	0	44
Oklahoma	0	0	0	8
Oregon	0	0	0	40
Pennsylvania	0	0	0	8
Rhode Island	0	0	0	103
Texas	0	0	0	3
Virginia	0	0	0	3
Washington	0	0	0	88
Wisconsin	8	258	0	3,101
Total	45	305	7	14,754

Table 5. Comparison of tuberculosis screening and treatment algorithms for Hmong and Burmese refugees in Thailand¹.

Category	Standard March 2004	Limited Enhancement (Algorithm 1) May 2004	Interim (Algorithm 2) February 2005	Current (Algorithm 3)² June 20, 2005
TB history	Yes	Yes	Yes	Yes
PE ³	Yes	Yes	Yes	Yes
CXR	Persons ≥ 15 years: PA; <15 yrs: frontal and lateral views in specific circumstances	Persons ≥ 15 years: PA; <15 yrs: frontal and lateral views in specific circumstances	Persons 6 months-9 years: AP or PA, and LAT Persons ≥ 10 Years: PA	Persons 6 months-9 years: AP or PA, and LAT Persons ≥ 10 Years: PA
TST	Not routine; used infrequently in specific circumstances	Not routine; used infrequently in specific circumstances	Persons <10 years	All persons ≥ 6 months
Management of known TB contacts ⁴	NA	For children (regardless of TST results) with impaired immunity; for adults with impaired immunity	Earmarked for U.S. follow-up on DS medical forms	Overseas management and US follow-up: 1. For children < 4 years who are family or household contacts to a known TB case ⁴ : if children have negative evaluations for TB disease (and source case is pansusceptible or source case culture results are unknown), begin DOPT regardless of TST result; if repeat TST at 8 wks is negative, can discontinue DOPT; can travel before Rx completion. 2. For contacts (all ages) to DR or MDR cases: perform PE, symptom evaluation and CXR every 3 months for 6 months, then every 6 months, until 24 months after end of estimated exposure; however, may travel when TB disease (after exposure) ruled out, earmarked for US follow-up 3. Earmark all contacts (including those that do not fit into specific categories above) for US follow-up as "Class B TB, Other: Contact to known TB case" , with TST results, source case information, and treatment status noted.

Category	Standard March 2004	Limited Enhancement (Algorithm 1) May 2004	Interim (Algorithm 2) February 2005	Current (Algorithm 3) ² June 20, 2005
Management of persons with positive TST	NA	NA	Earmarked for U.S. follow-up in DS medical forms	Earmarked for U.S. follow-up as " Class B TB, Other, TST ≥ 5 mm ", with TST results and treatment status noted
TB laboratory screening	Persons ≥ 15 years with CXR and/or symptoms suggestive of active disease (or children <15 years of age who are contacts, have hx of TB disease, or signs or symptoms): AFB smears x 3	1. Persons ≥ 15 years of age with CXR and/or symptoms suggestive of active disease (or children <15 years of age who are contacts, have hx of TB disease, or signs or symptoms): AFB smears x 3 2. Cultures if smears negative and signs or symptoms of TB or CXR highly suspicious 3. Cultures in addition to smears if HIV-infected	Persons < 10 years with TB symptoms, abnormal PE, or abnormal CXR: AFB smear x 3, with TB cultures and DST (collection by either expectorated or induced sputum or gastric aspirates) Persons > 10 years with TB symptoms, abnormal PE, or CXR suggestive of active or inactive TB, or HIV positive: AFB smear x 3, with TB cultures and DST	Persons ≥ 6 months with TB symptoms, abnormal PE, or CXR suggestive of active or inactive TB, or HIV positive : sputum for AFB smear x 3 plus TB cultures and DST (for persons < 10 years: specimen collection by either expectorated or induced sputum or gastric aspirates)
Public health response: contact investigations	History of TB contact noted	Not specifically addressed in guidance	Conducted in field; not specifically addressed in guidance	Specific guidance that family and household contacts of all TB patients should be evaluated, classified, appropriately managed, and earmarked and classified for U.S. follow-up
Sources of TB drugs	Source not specified	Source not specified	U.S., European, Japanese, or Australian	Quality assured drugs: International Dispensary Association and WHO Global Drug Facility
Initial patient management prior to laboratory results	NA	NA	Generally indicated if symptoms	Consider treatment for other lower respiratory infection (no fluoroquinolones); guidance included for beginning empiric TB treatment, based on CXR, AFB, and clinical findings

Category	Standard March 2004	Limited Enhancement (Algorithm 1) May 2004	Interim (Algorithm 2) February 2005	Current (Algorithm 3) ² June 20, 2005
TB treatment and management	TB treatment guidance outdated, and minimal guidance for drug-resistant TB	TB treatment guidance outdated, and minimal guidance for drug-resistant TB	Refer to ATS/CDC guidelines Extensive CDC consultation recommended	Drug-susceptible TB: Refer to ATS/CDC guidelines DR, including MDR-TB: Refer to Francis J. Curry Center: <i>Drug-Resistant Tuberculosis : A Survival Guide for Clinicians</i> ⁶ ; CDC consultations recommended and available when needed
Laboratory monitoring during TB treatment	No monitoring after AFB smear becomes negative	No monitoring after AFB smear becomes negative	Non-MDR TB: Sputum for AFB smear and culture monthly until 2 consecutive smears and cultures are negative MDR TB: Same, plus smears and cultures every three months after negative results	Sputum for AFB smear and culture monthly until culture negative for 2 consecutive months, and at end of treatment
Validity of TB screening examination	12 months if normal; 6 months if Class A condition or Class B1 or B2 TB condition	12 months if normal; 6 months if Class A condition or Class B1 or B2 TB condition	One month if normal or abnormal	Normal screening exam: 3 months Abnormal screening exam with negative smear and culture and no treatment overseas: 3 months from receipt of negative culture results (5 months total allowed: 2 months for lab processing of cultures plus 3 months to travel) Abnormal screening exam followed by treatment overseas: 3 months from successful completion of treatment Pre-departure screening (PDS ⁷) examination required within 3 weeks of departure for all with abnormal screening results (treated or not requiring treatment)

Category	Standard March 2004	Limited Enhancement (Algorithm 1) May 2004	Interim (Algorithm 2) February 2005	Current (Algorithm 3) ² June 20, 2005
Clearance after TB diagnosis and treatment	NA	NA	No clearance until post-treatment sputum monitoring completed	No clearance without satisfactory completion of treatment for TB (Waivers considered only in extraordinary circumstances, and require approval by treating physician and receiving local health department)
Pre-departure clearance examination	NA	Evaluation for TB symptoms 1-2 weeks prior to departure if HIV +	All refugees (no interval indicated)	PDS within 3 weeks of departure for all refugees with abnormal screening results (treated or not requiring treatment); refer to groups above in "Validity of TB screening examination"
Information transfer to CDC and state and local public health	Paper: DS medical forms travel with refugees and are processed at port of entry	Paper: DS medical forms travel with refugees and are processed at port of entry	Paper: DS medical forms and additional information on TB treatment travel with refugees, and are processed at port of entry Electronic data transfer of DS medical forms, including TB screening, diagnosis and treatment, to DGMQ at time of migration Secure electronic data transfer to state (refugee and TB) programs	Paper: DS medical forms and additional information on TB treatment travel with refugees and are processed at port of entry Electronic data transfer of DS medical forms, including TB screening, diagnosis and treatment, to DGMQ at time of migration Secure electronic data transfer to state (refugee and TB) programs

¹This document summarizes overseas tuberculosis screening and treatment guidelines which were recommended by CDC specifically for Hmong and Burmese Refugees in Thailand (not in the U.S.) in 2004 and 2005. It does not provide guidance for any other population groups at this time.

²In instances of discrepancies between the TB Controller/Refugee Health Coordinator letter of June 15, 2005, and the final algorithm noted here, this final algorithm takes precedence

³List of Abbreviations and Acronyms:

AFB = Acid-fast bacilli	DS = U.S. Department of State	MDR = Multidrug-resistant TB
AP = Anteroposterior chest radiograph	DST = Drug susceptibility testing	NA = Not applicable
CXR = Chest radiograph	HIV = Human immunodeficiency virus	PA = Posteroanterior CXR
DOPT = Directly observed preventive therapy	INH = Isoniazid	PE = Physical Examination
DR = Drug-resistant TB	LAT = Lateral CXR	TST = Tuberculin skin test

⁴Contacts: Family members regardless of whether they live in source case household, and household members (defined as same address in the refugee camp) of source case even if there is no familial relationship to source case

⁵May be diagnosed clinically only

⁶Francis J. Curry National Tuberculosis Center and California Department of Health Services, 2004: ***Drug-Resistant Tuberculosis: A Survival Guide for Clinicians***

⁷PDS = PE, evaluation for signs/symptoms, CXR, AFB smears X 3